

POLYNOMIAL UNIT REVIEW

Multiple Choice

- Simplify $(4 + 2i) - (3 - 5i)$
 - $7 + 7i$
 - $1 + 7i$
 - $7 - 3i$
 - $1 - 3i$
- Simplify $(1 - 3i)^2$
 - $1 + 9i^2$
 - -8
 - $-8 - 6i$
 - $10 - 6i$
- Simplify the following expression: $\left(\frac{6p^8q^9}{(2p^3q^4)^3}\right)^{-2}$
 - $\frac{3}{4pq^3}$
 - $\frac{9}{16p^2q^6}$
 - $\frac{4pq^3}{3}$
 - $\frac{16p^2q^6}{9}$
- The sides of a rectangle are $(2x^2 - 11x + 1)$ ft and $(3x - 4)$ ft find the perimeter of the rectangle.
 - $(2x^2 - 8x - 3)$ ft
 - $(4x^2 - 16x - 6)$
 - $(5x^3 - 11x - 3)$ ft
 - $(6x^3 - 41x^2 + 47x - 4)$ ft²
- The sides of a rectangle are $(2x^2 - 11x + 1)$ ft and $(3x - 4)$ ft find the area of the rectangle.
 - $(6x^3 - 41x^2 - 41x - 4)$ ft²
 - $(6x^3 - 25x^2 + 47x - 4)$ ft²
 - $(6x^3 - 41x^2 + 47x - 4)$ ft²
 - $(6x^3 - 33x - 4)$ ft²
- A pool that is 10ft by 20 ft is going to have a deck (x) ft added all the way around the pool. Write an expression in simplified form for the area of the deck.
 - $(60x + 4x^2)$ ft²
 - $(30x + x^2)$ ft²
 - $(200 + 60x + 4x^2)$ ft²
 - $(200 + 30x + x^2)$ ft²
- What is the area of a square with sides $(6x - 2)$ inches?
 - $(36x^2 - 4)$ in²
 - $(36x^2 + 4)$ in²
 - $(36x^2 - 12x - 4)$ in²
 - $(36x^2 - 24x + 4)$ in²

8. $\frac{27w^3x^5 - 12w^4x^3 + 24w^3x^2}{6w^2x^2}$ is equivalent to which of the following?

a. $\frac{9wx^3 - 4w^2x + 4w}{3}$

b. $\frac{9wx^3}{2} - 2w^2x + 4w$

c. $\frac{9wx^3 - 4w^2x}{3} + 4w$

d. $\frac{9wx^3 + 4w^2x + 8w}{2}$

9. $(2a^4 - 6a^2 + 4) \div (a - 2)$

a. $2a^3 - 3a - 2$

b. $2a^3 - 3a^2 - 2$

c. $2a^3 + 4a^2 - 2a - 4 + \frac{-4}{a-2}$

d. $2a^3 + 4a^2 + 2a + 4 + \frac{12}{a-2}$

10. A box has volume of $(3x^2 - 2x - 5) \text{ cm}^3$ and a height of $(x+1) \text{ cm}$. Find the area of the base of the box.

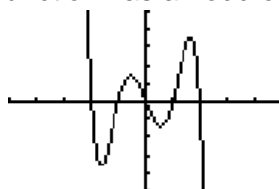
a. $(3x + 2) \text{ cm}^2$

b. $(3x - 2) \text{ cm}^2$

c. $(3x + 5) \text{ cm}^2$

d. $(3x - 5) \text{ cm}^2$

11. Using the graph, decide if the following function has an odd or even degree and the sign of the lead coefficient.



a. odd degree; positive

b. odd degree; negative

c. even degree; positive

d. even degree; negative

12. Which of the following equations is of an odd-function?

a. $y = 3x^5 - 2x$

b. $y = 5x^7 - 3x^3 + 9$

c. $y = x^5(x^7 + x^5)$

d. $y = 7x^{10}$

13. What value should A be in the table so that the function has 4 zeros?

a. -2

b. 0

c. 1

d. 3

f(x)
6
A
2
3
1
-1
0

14. Name all of the real and imaginary zeros and state their multiplicity:

$$y = (x^2 + 8x + 16)(4x^2 + 64)$$

a. Real zeros: -4 with multiplicity 2; Imaginary zeros: $\pm 4i$ each with multiplicity 1

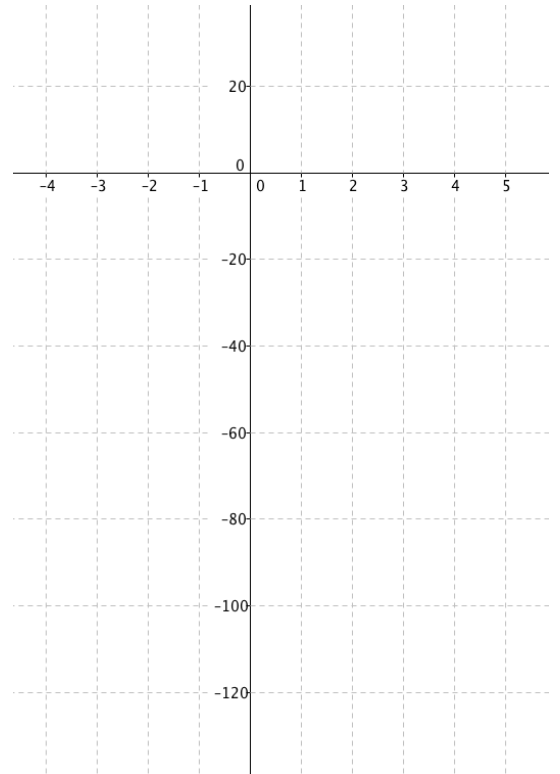
b. Real zeros: -4 with multiplicity 3, 4 with multiplicity 1; No imaginary zeros

c. Real zeros: -4 with multiplicity 4; No imaginary zeros

d. Real zeros: -4 with multiplicity 2; Imaginary zeros: $2i$ with multiplicity 2

Extended Response

1. Graph $y = (x + 2)^2(x + 1)x(x - 1)(x - 3)$.
Name the real zeros and their multiplicity.



2. Given the function $f(x) = 3x^3 + 3x^2 - 6$. Write the function in factored form.

3. Name all of the real and imaginary zeros and state their multiplicity of the function
 $f(x) = x^3 - 10x^2 + 11x + 70$

4. Write a polynomial function of least degree with integral coefficients that has the given zeros.

-4.5, -1, 0, 1, 4.5

5. Consider the graph of a degree 5 polynomial shown to the right, with x -intercepts -4 , -2 , 1 , 3 , and 5 .
Write an equation for a possible polynomial function that the graph represents.

